UNIPOWER

Powering Technology

OPERATING MANUAL
AC POWER DISTRIBUTION UNITS
VIGILANT SERIES

www.unipowerco.com

Manual No. PDUAC1USM-2

pduac1us-man-rev2-0115.indd

Contents

OPERATING MANUAL
VIGILANT SERIES

1.0   INTRODUCTION

The VIGILANT Series is a family of Internet ready Power Distribution Units (PDU) designed and is equipped with an intelligent current-meter (True RMS) that will indicate the total power consumption of the connected loads.

These PDUs offer easy to set up user-friendly communication software which provides the functions to assist network manager in remotely monitoring multiple PDU power consumption for the entire enterprise.

Features:

- Built-in web server, the network manager can monitor the current consumption of the PDU in real time.
- Build-in true RMS current meter.
- Easy setup, the meter can display the IP address directly.
- Homepage supports SSL.
- Provides an audible alarm when power consumption is in excess of preset warning and overload limits.
- Can send emails and SNMP Alarm Traps when the power consumption exceeds the above limits.
- The supplied software utility can monitor a large number of PDUs at the same time.
- SNMP support with provided MIB allows for the PDU to be monitored by a NMS.
- Real time to control of individual outlets.
- LED outlets status indication.
- Power on sequencing.

2.0   PDU PACKAGE

The standard package contains a VIGILANT Series PDU with supporting hardware and software. The components of the package are:

- Power Distribution Unit.

- Rack mount Brackets.

- CD-ROM containing:

  - User Manual.

  - PDU Software.

  - MIB: Management Information Base for Network. (PDUMIB.mib)

  - Adobe Acrobat Reader.

3.0   FUNCTION

Interface

True RMS Current
Meter

Functions	Description
Ethernet	RJ45 port for network communication port.
Audible Alarm	Warning - 1 beep in 1 second. Overload - 3 beeps in 1 second. Note: The audible alarm will keep beeping until the current returns to normal and is also at least 0.5A lower than the alarm threshold.
Function Button	● Press and release to turn off the warning beep. The overload beep cannot be cancelled. ● Press and hold the key for 1 beep; the meter shows the total current. ● Press and hold the key for 2 beeps; the meter shows the IP address ● Press and hold the key for 4 beeps; sets DHCP ON or OFF. Note that VIGILANT Series PDUs are shipped with DHCP set to ON. ● Press and hold the key for 6 beeps; Resets the PDU back to it's default settings.
Meter	3 digits to display current or IP Address.

| LED Indicator	SSL (yellow): Light on means web access is protected by SSL.
	DHCP (Green): Light on means the PDU gets its IP address through DHCP.
	A - H (Green): Indicates the status of each outlet.
Circuit Breaker	Overload power protection. Push to reset.

4.0   INSTALLATION

This section provides quick instructions to install the PDU.

Rack Mount Instructions

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Diagram
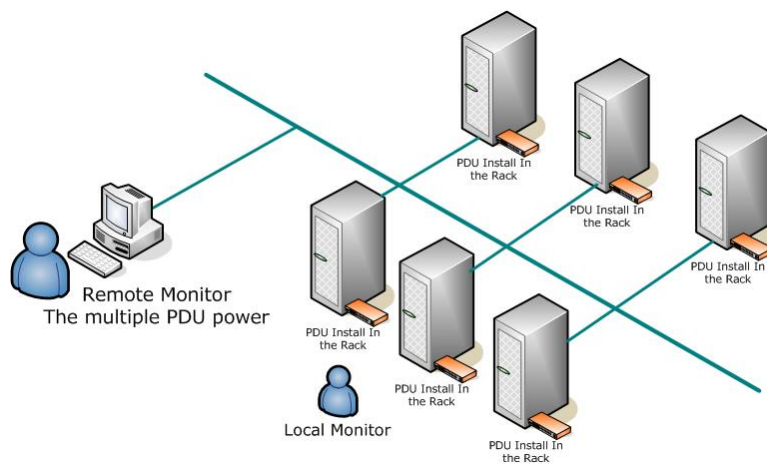
Hardware

1. Install mounting brackets.

    The PDU comes with brackets for mounting in a rack. To mount the PDU into a rack perform the following procedure:

    Attach the mounting brackets to the unit, using the four retaining screws provided for each of the brackets.

    Choose a location for the brackets.

    Align the mounting holes of brackets with the notched hole on the vertical rail and attach with the retaining screws.

2. Connect input and output power.

3. Connect Ethernet cable to the PDU.

4. Switch on the PDU.

Note 1:

The default setting for obtaining an IP address is via DHCP. If a DHCP server is not available the IP address can be programmed as desired manually using a PC set to the same network segment and connected with a cross-over Ethernet cable. The default IP address is 192.168.0.216.

Note 2:

TO SETUP THE NETWORK SYSTEM FOR VIGILANT PDUs, IT IS STRONGLY RECOMMENDED TO BUILD UP THE POWER MONITORING NETWORK ISOLATED FROM ANY OTHERS.

5.0   WEB INTERFACE

Login:

Enter the PDU IP address in a web browser in the format http://192.168.0.216

Default ID is snmp.

Password is 1234.
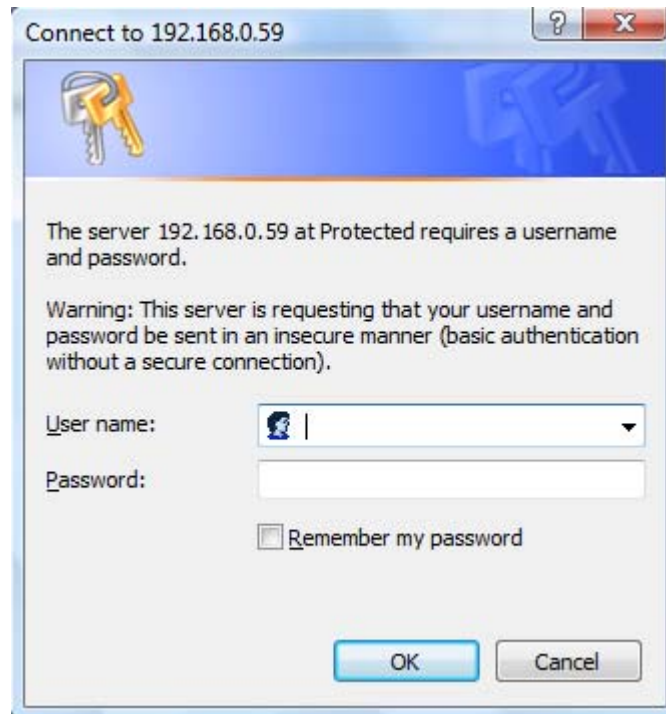
Information: PDU

Displays the total PDU load current as well as the WARNING and OVERLOAD threshold settings.

Information: System

Indicates PDU system information, including:

Model No.

Firmware Version

MAC Address

System Name

System Contact

Location

Control: Outlet

Indicates PDU outlet on/off status and controls each outlet.

Select the outlet by checking the box and then click ON or OFF button to control the outlet.

ON: Press the icon to turn on the assigned outlets.

OFF: Press the icon to turn off the assigned outlets.

OFF/ON: Press the icon to reboot the assigned outlets.

	PDU		
	Total load: 0.0 A , Status: Normal		
Information	**Outlet Name**	**Status**	☐
PDU	OutletA	ON	☐
System	OutletB	ON	☐
Control	OutletC	ON	☐
Outlet	OutletD	ON	☐
Configuration	OutletE	ON	☐
PDU	OutletF	ON	☐
Threshold	OutletG	ON	☐
User	OutletH	ON	☐
Network	ON	OFF	OFF/ON
Mail			
SNMP			
SSL			

Configuration: PDU

Sets the outlet name and delay time.

Name: Rename the outlet.

ON: Set delay time for power on sequencing.

OFF: Set delay time for power off sequencing.

Click on the appropriate **APPLY** button to lock in the new settings.

Note: The maximum delay time is 255 seconds.

Configuration: Threshold

Sets the warning and overload threshold.

Click on the **APPLY** button to lock in the new settings.

Configuration: User

Change ID and password.

Default ID is **snmp** and password is **1234**.

Click on the **APPLY** button to lock in the new settings.

Configuration: Network

PDU network information

Enable DHCP: When checked the PDU will obtain it's IP from the server.

Click on the **APPLY** button to lock in the new settings.

Configuration: Mail

When an event occurs, the PDU can send out an email message to a pre-defined account.

Email Server: Enter the Mail Server's Domain Name.
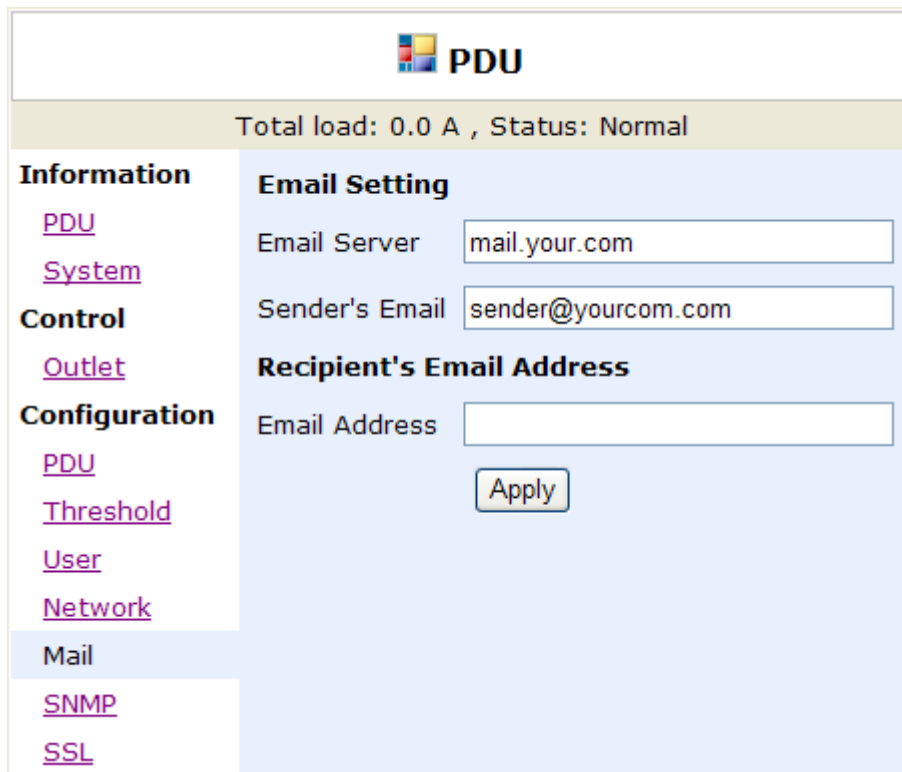
Sender's Email: Enter the sender email address.

Email Address: Enter the recipient email address.

Click on the **APPLY** button to lock in the new settings.

The message in the email:
Indicates OutletA~H-XXXXXXXX status in order
X=0 : means power off.
X=1 : means power on.

Note: Make sure DNS server can resolve the Email Server's domain name.

PDU
Total load: 0.0 A , Status: Normal

Information
PDU
System
Control
Outlet
Configuration
PDU
Threshold
User
Network
Mail
SNMP
SSL

Email Setting

Email Server   mail.your.com

Sender's Email   sender@yourcom.com

Recipient's Email Address

Email Address

Apply

Configuration: SNMP

When event occurs, PDU can send out trap message to pre-defined IP address.

Trap Notification: Sets receiver IP for alarm traps.

Community: Sets the SNMP community.
Read Community is "public" and "fixed".
Default Write Community is "public" and can be modified by the user.

Click on the appropriate **APPLY** button to lock in the new settings.
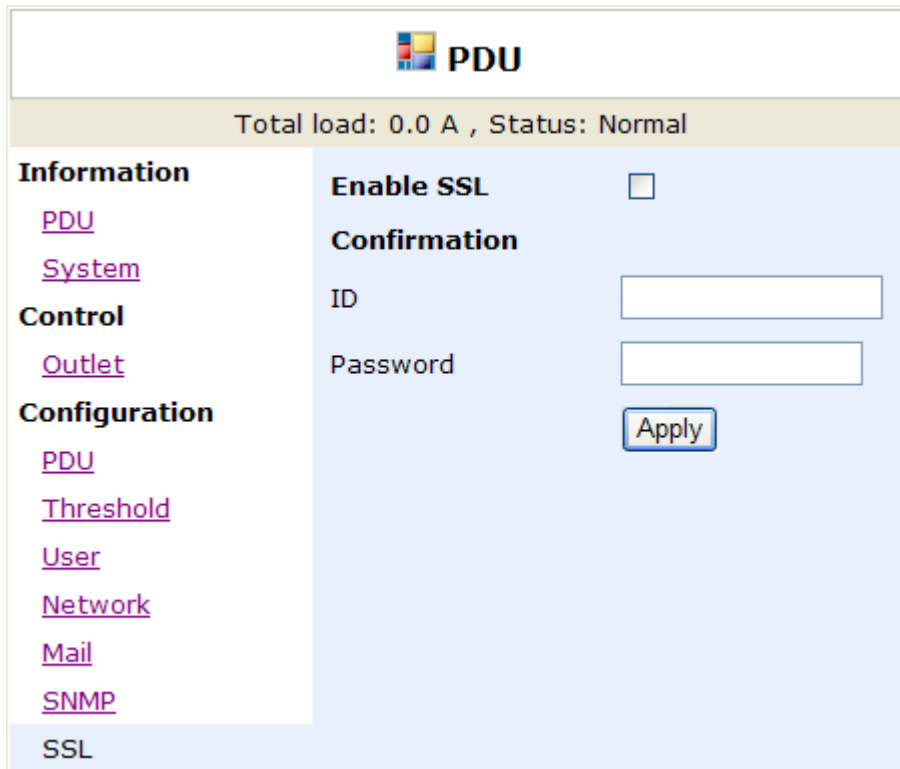
Configuration: SSL

Enables SSL for web communication.

 User must enter the correct ID and password to enable SSL function.

 These must be the same as the settings in "User".

Click on the **APPLY** button to lock in the new settings.

SOFTWARE UTILITY OPERATING MANUAL
AC POWER DISTRIBUTION UNITS
VIGILANT SERIES

www.unipowerco.com

Manual No. PDUAC1U_SWM-2

pduac1us-sw-man-rev2-0115.indd

Contents

UTILITY SOFTWARE OPERATING MANUAL
VIGILANT SERIES

1.0   INTRODUCTION

General

The VIGILANT PDU Utility monitoring and management software. It has been designed to provide information about power conditions and the status of Vigilant PDUs as well as the power environment.

Its functions include

1. Monitoring a large number of PDUs simultaneously.

2. Group Management of a large number of PDUs.

3. Provision of power consumption charts for daily, monthly or user-defined periods.

4. Sending of emails and SNMP traps to when a power event occurs.

5. Forwarding of SNMP traps.

6. Events can be logged and exported to the Syslog server.

2.0 INSTALLATION

Installation procedure:

CD Auto play screen. Please install the software step by step.
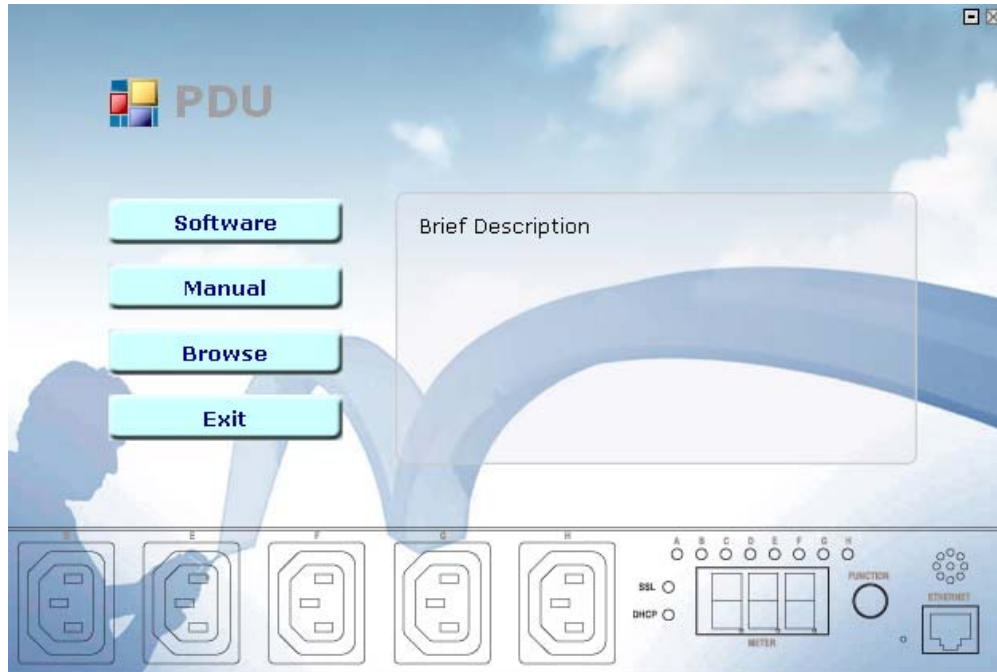
Note:

1. It will take several minutes if your operating system does not already have Microsoft .NET Framework installed.

2. It is recommend to install the VIGILANT Series PDU Utility to a Windows Server.

3. If the utility is installed on a PC running Windows Vista or Windows 7, you must first go to the programme folder and select the Properties of "PDU.exe", shown as below to check the "Run this program as an administrator". Otherwise the utility may not work normally.
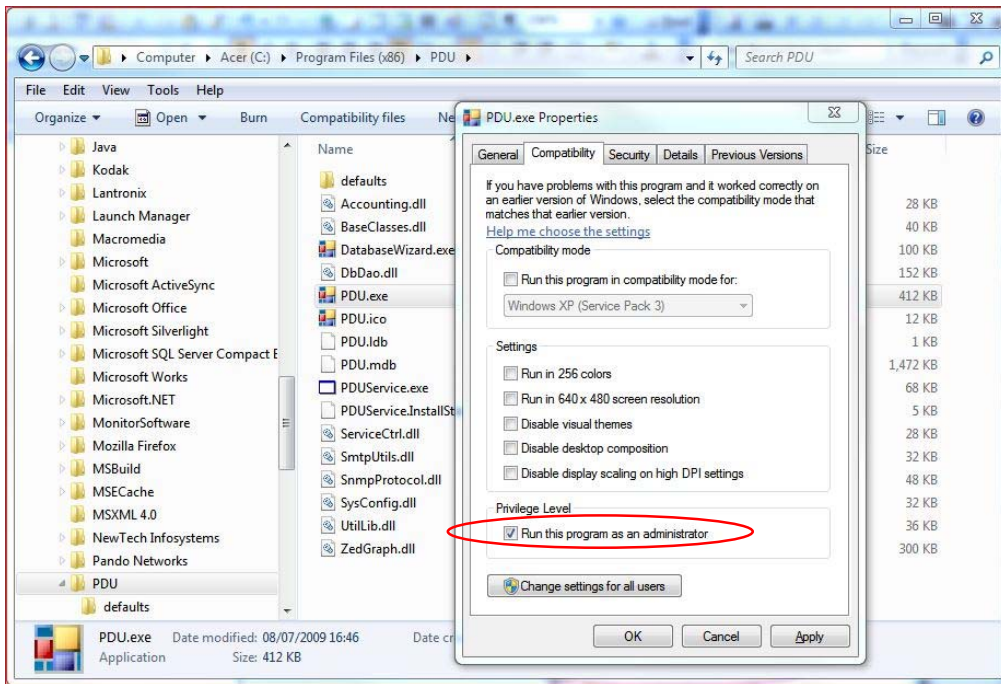
The first time this software is run, you must select what kind of database that you want to use to record the information.

- The default database is set to Microsoft Access.

- If you want to use MySQL database, you may download it from http://www.mysql.org
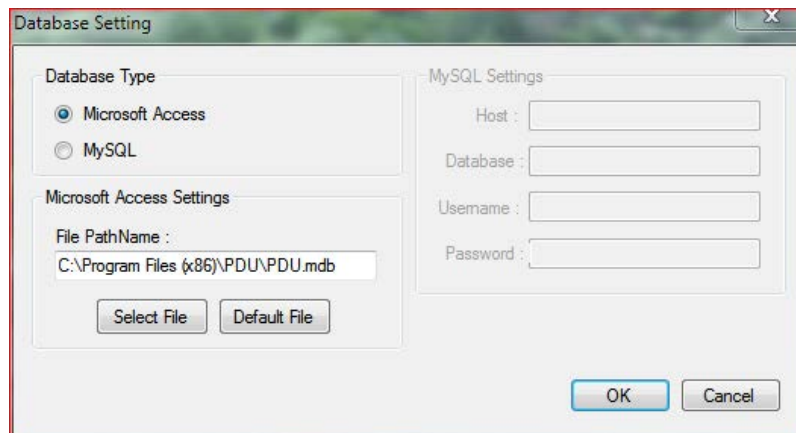
3.0   PDU UTILITY INTERFACE

Start

The Login Screen.

The default User Name is **admin**, Password is **1234** .
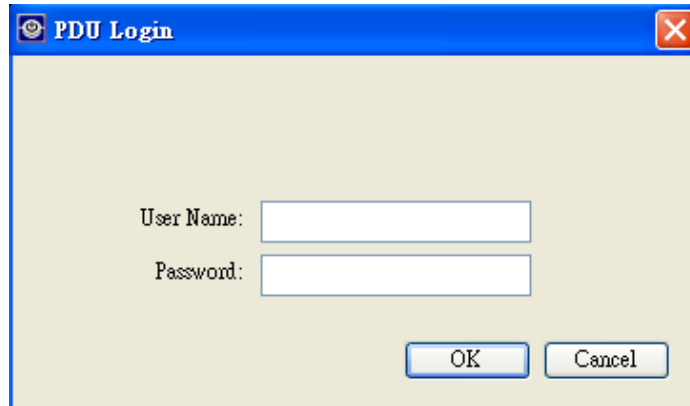
After logging in, you will see the software interface as shown below, it contains four sections:

1. **Function Menu:**
   PDU Utility function bar.

2. **PDU List:**
   Lists all PDUs in the network; the user can define groups of PDUs for easier management of a large number.

3. **PDU Information:**
   This area provides all detailed information about an individual PDU.

4. **Device Summary:**
   Indicates the status of all monitored PDUs in the network.
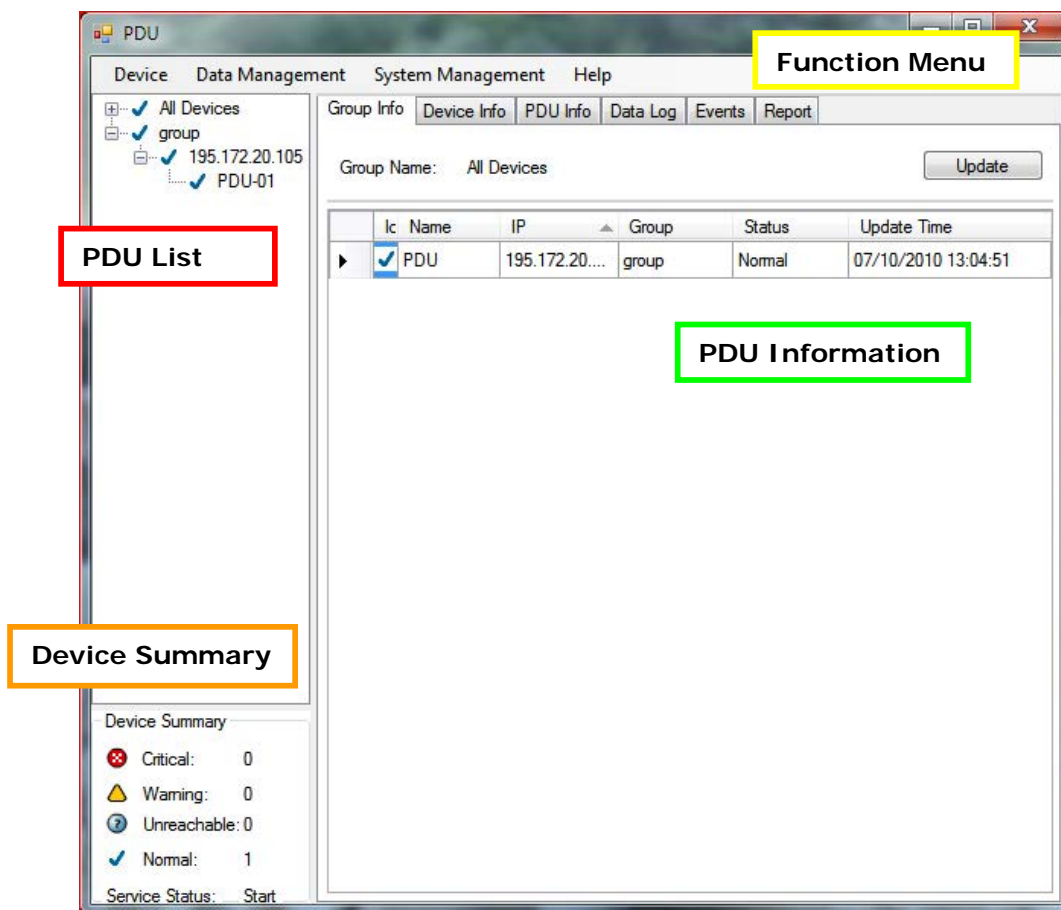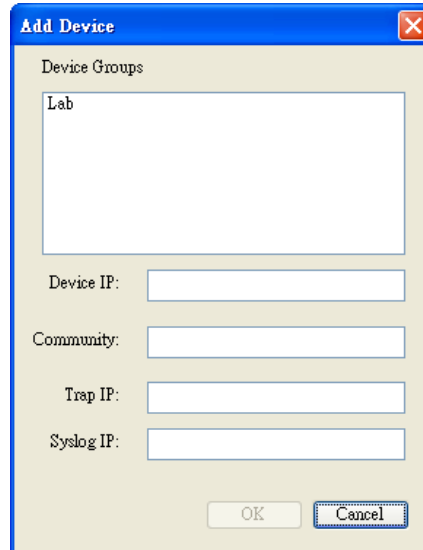
Function Menu

Device

Add Device

Administrator can add a PDU manually if the IP address of PDU is already known.

Device Group: Select the group the PDU belongs to.

SNMP Community: Set the community, it must the same as the PDU for correct communication.
                     Default setting is "private"

                     Note1: This community is set to "WRITE" authority.

                     Note2: The "READ" community is set to "public", and cannot be changed.

Trap forward IP: Defines the IP address of the NMS where the trap is to be forwarded to.

Syslog server IP: Defines the IP address of the Syslog server.

Edit Device

The administrator can redefine information about and individual PDU here, including
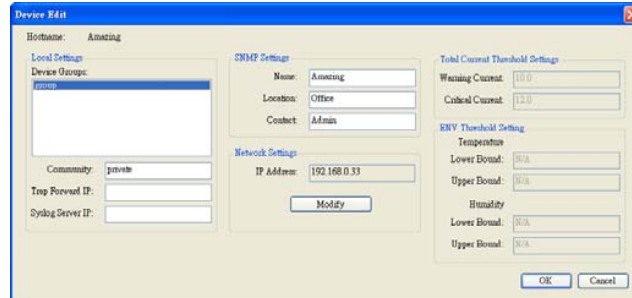
Device Group:	Change the group the PDU belongs to.
SNMP Community:	Set the community, it must the same as the PDU setting.
	Note: This community is set to "WRITE" authority.
Trap forward IP:	Change the trap receiver IP.
Syslog server IP:	Change the Syslog server IP.
SNMP Settings:	Modify the SNMP settings for the PDU.
Network Settings:	Re-defined the IP address of the PDU.
Total Current Threshold Setting	Only available when there is more than one PDU under this IP address.
	The administrator can input the current threshold to prevent total PDUs' power consumption exceeding the facility capacity.
ENV Threshold Setting	FOR FUTURE USE ONLY.

Click MODIFY button for below;

The Administrator can change the method that Utility will find the PDU's IP.
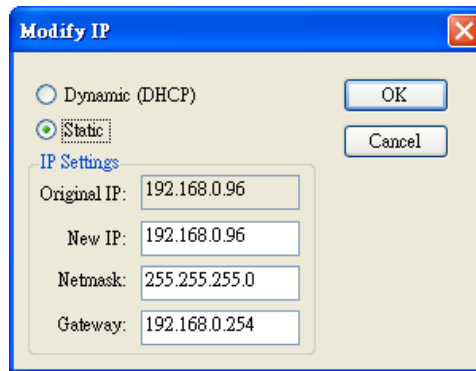
| Remove Selected Device | Delete the selected IP address from the list. The utility will no longer be able to monitor the PDU in question. |

| Edit PDU Config | Modify PDU configuration. |

	PDU Name:	Defines the PDU name.
	Voltage:	Defines the actual working voltage.
	Threshold:	Sets the Warning and Overload thresholds.
	Outlet Name: (Optional)	Defines each outlet name.
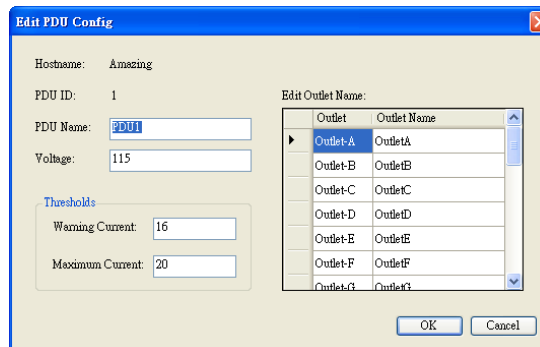
Remove Selected PDU	Delete the selected PDU from the list. The utility will no longer be able to monitor the PDU in question.
Update Device Information	Sends a request to the selected PDU to update it's information.
Add Device Group	Create a new group.
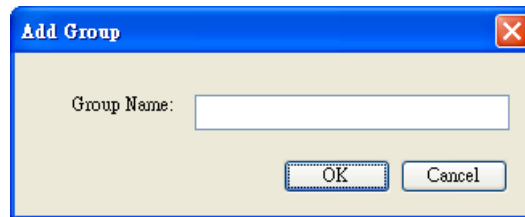
The default group is named "Lab".

Edit Group	Rename a group
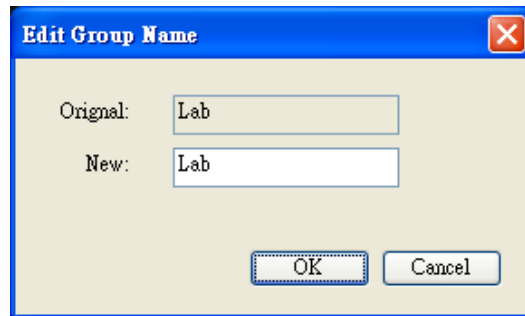
Remove Device Group	Delete an existing group. All PDU listed under this group must be removed first.

Data Management

Export kW*hr Account to CSV	Export power data with CSV format.
Export Data Log to CSV	Export current data log with CSV format.
Export Events to CSV	Export events data with CSV format..
Remove kW*hr Account Records	Delete power consumption data.
Remove Data Log Records	Delete current data log.
Remove Event Records	Delete event log.

System Management

Scan Subnet

Search for the IP addresses of all PDUs that are connected under the same subnet.

Procedure:

1. Select how to scan the PDU in the network.

   - Scan network interface subnet
   - Scan the specify subnet

2. Press the "Scan" Button to search all PDU devices under this subnet.

3. Check the box under "ADD" for each PDU you want to monitor.

4. Select one of the groups in "Device Group" to group the PDUs.

5. Select "OK" to finish the procedure.
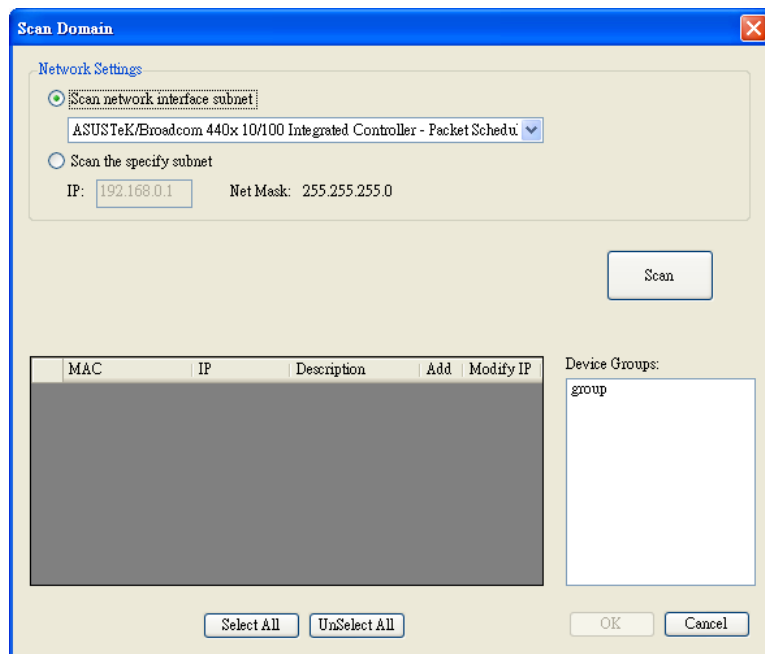
General Setting

Administrator can enable and setup email forwarding of PDU events.
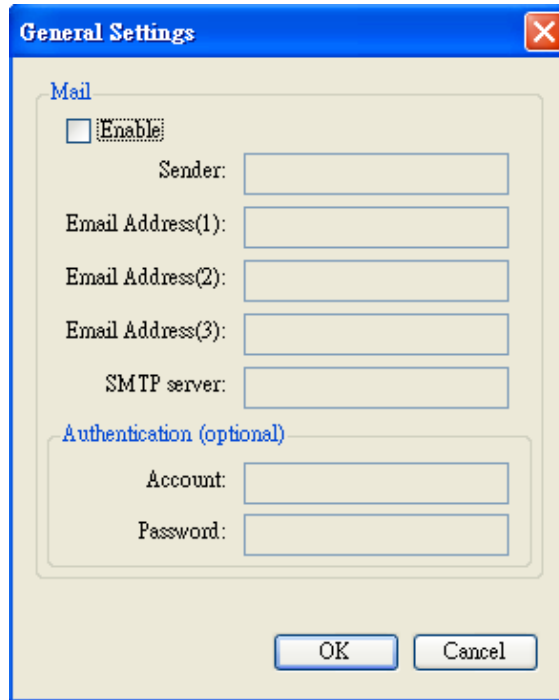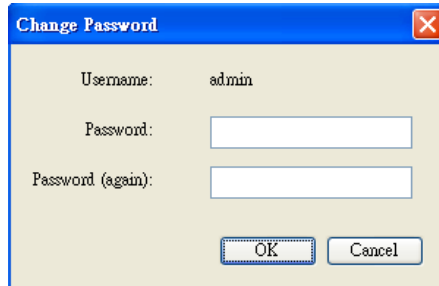
User List

Administrator can add, delete and manager all user privileges.
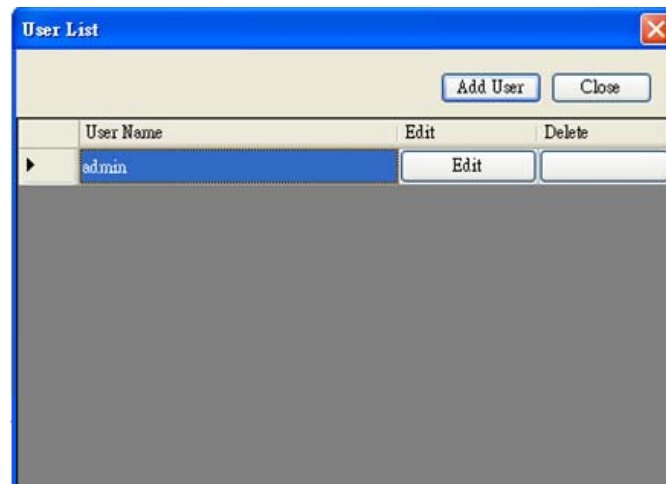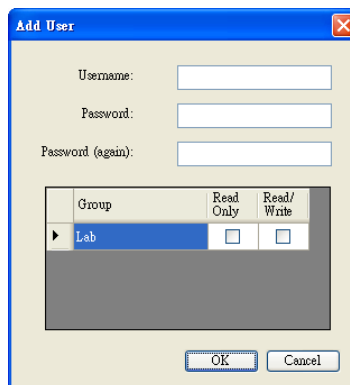
User can only change the password for the "Admin" account.

Add user

User can be assigned Read only or Read/Write authority.
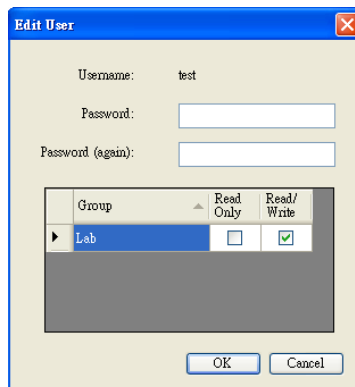
Edit User

Change the password and authority for the user.

Database Setting   Modify the database setting.
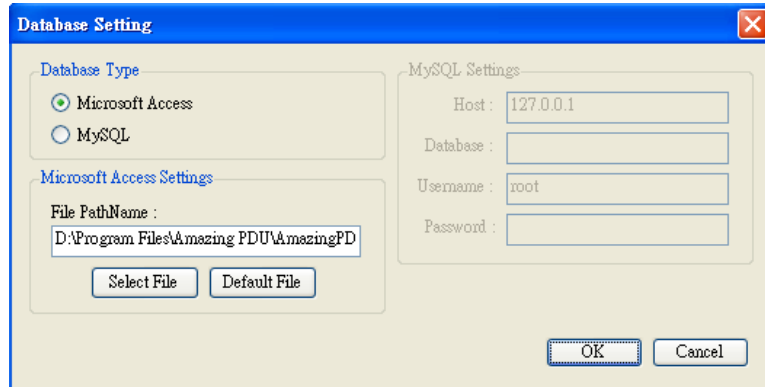
Service Control   Service control.
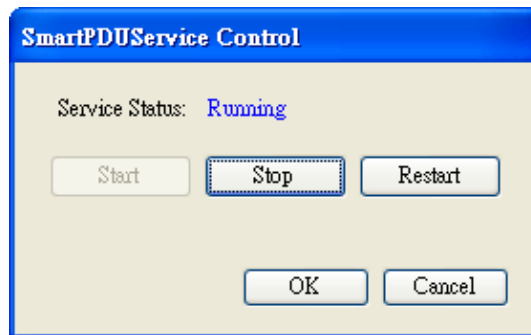
Note:
If the service can not start, it could be that the SNMP port has already been used by another program in the Windows OS. Please close the other program and then restart the PDU Utility.

PDU Information

Device Summary   List of all PDUs being monitored and provides important 'at a glance' status information.

Critical: Indicates the number of PDUs where the output power exceeds the overload setting.

Warning: Indicates the number of PDUs where the output power exceeds the warning setting.

Unreachable: Indicates the number of PDUs that the Utility can not access.

Normal: Indicates the number of PDUs that are working normally.

Service Status   PDU Utility service status.

When this indicates "Stopped", go to System Management > Service Control to "Start" the service.

Group Information
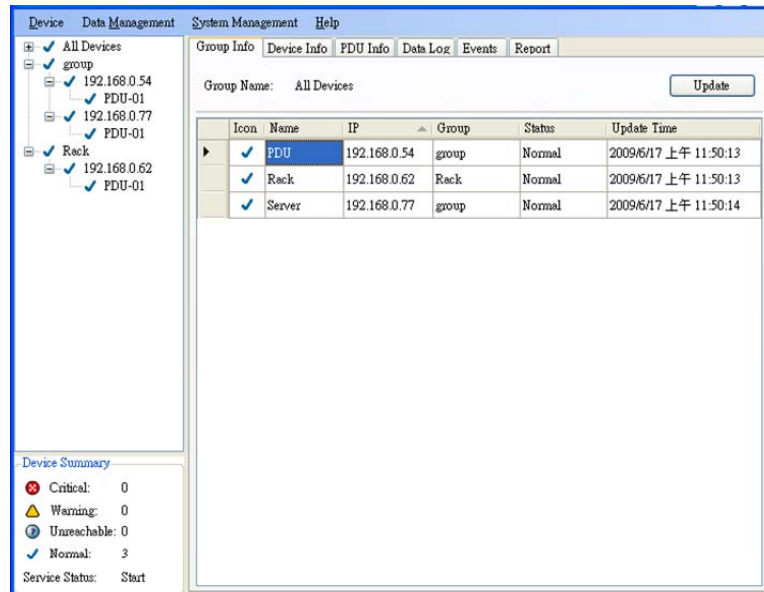
Icon: Indicate the PDU status according to the Device Summary.

Name: The name of the PDU.

IP: The IP address of the PDU.

Status: Indicates the communication status with PDU Utility.

- Normal: The Utility can communicate with PDU normally.
- Querying: The Utility is requesting data from the PDU.
- Communication Lost: The Utility cannot get data from the PDU.
- Warning: The power consumption of PDU exceeds the warning threshold.
- Overload: The power consumption of PDU exceeds the overload threshold.

Update Time: The last time the PDU information was updated.

Device Information

Network Information:

Indicates network and system information including:

- IP Address
- MAC Address
- System Name
- System Contact
- System Location
- Trap Forward IP: Utility can forward the trap coming from the PDU to the given IP.
- Syslog Forward IP: Utility can send the log to the given IP which is syslog server.

General Information:

Indicate the detected information from total PDU device and attached device including:

- Firmware Version
- Temperature (for future use)
- Humidity (for future use)
- Total Current: If this IP lists more than one PDU, the utility can provide the function to accumulate all current consumption under this IP.
- Device Warning: The warning threshold for all current consumption under this IP.
- Device Critical: The critical threshold for all current consumption under this IP.
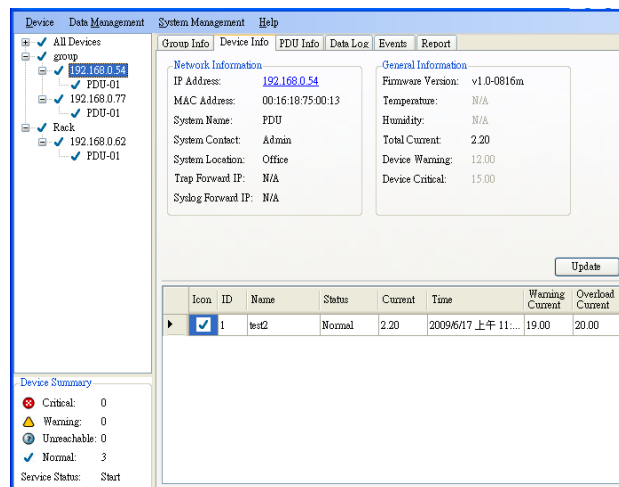
Connected PDU information includes:

Icon:	Indicate the PDU status according to the Device Summary.
ID:	Identification of PDU.
Name:	The name of PDU
Status:	Indicates the communication status with PDU Utility.

- Normal: The Utility can communicate with PDU normally.
- Querying: The Utility is requesting data from the PDU.
- Communication Lost: The Utility cannot get data from the PDU.
- Warning: The power consumption of PDU exceeds the warning threshold.
- Overload: The power consumption of PDU exceeds the overload threshold.

Current:	Power consumption of the PDU.
Time:	The current time.
Warning Current	Displays the setting of PDU warning threshold.
Overload Current	Display the setting of PDU overload threshold.

PDU Information

PDU System Information:

Provides PDU information and status.

PDU Power Information:

Provides PDU power information. Click the hyperlink to enter the PDUs web page to control the outlets.
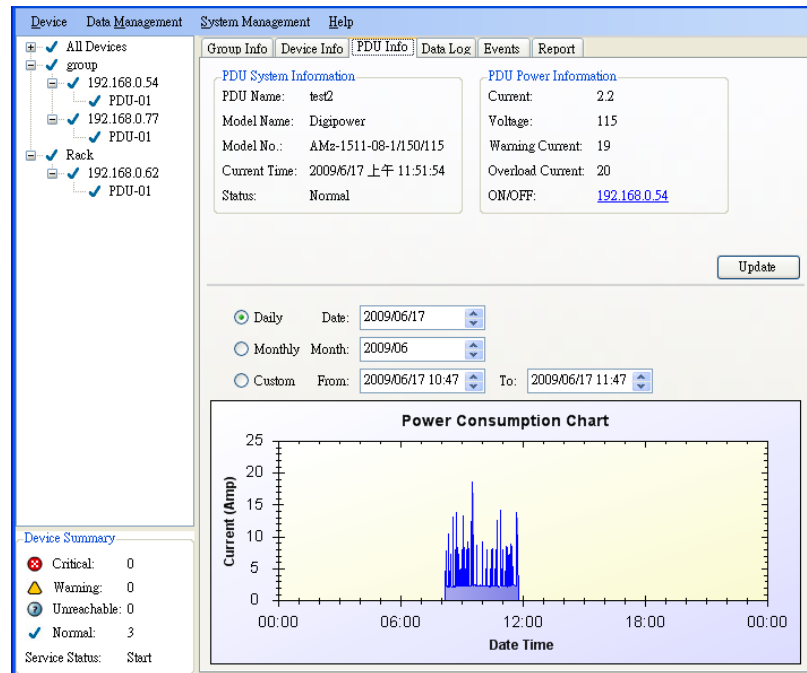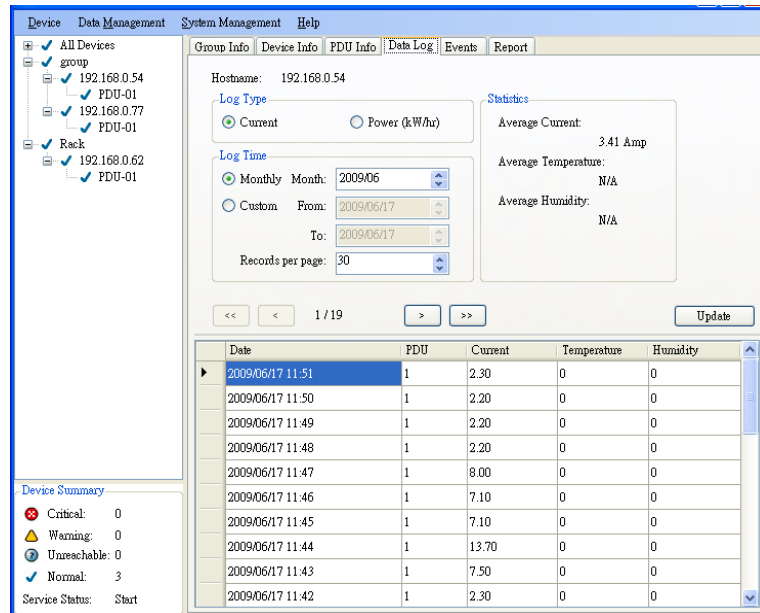
Power Consumption Chart:

Provides a chart for the PDU power consumption record. Administrators can check the record by Daily, Monthly or custom-defined time periods.
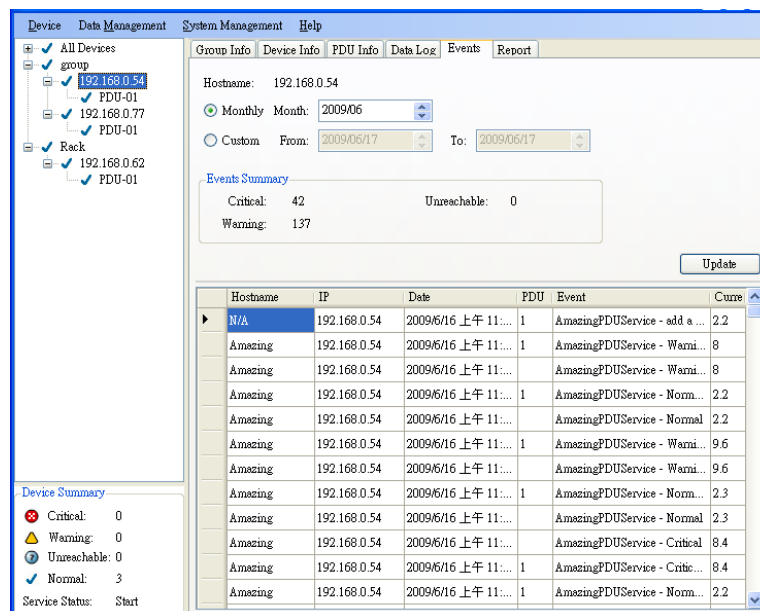
Data Log   Provides PDU current data and power record.

Events   Provides PDU event log.

Report   Provides data analysis.

1. Accumulated Power

2. Average Current

3. Average Temperature (For Future Use)

4. Average Humidity (For Future Use)

UNIPOWER
Powering Technology
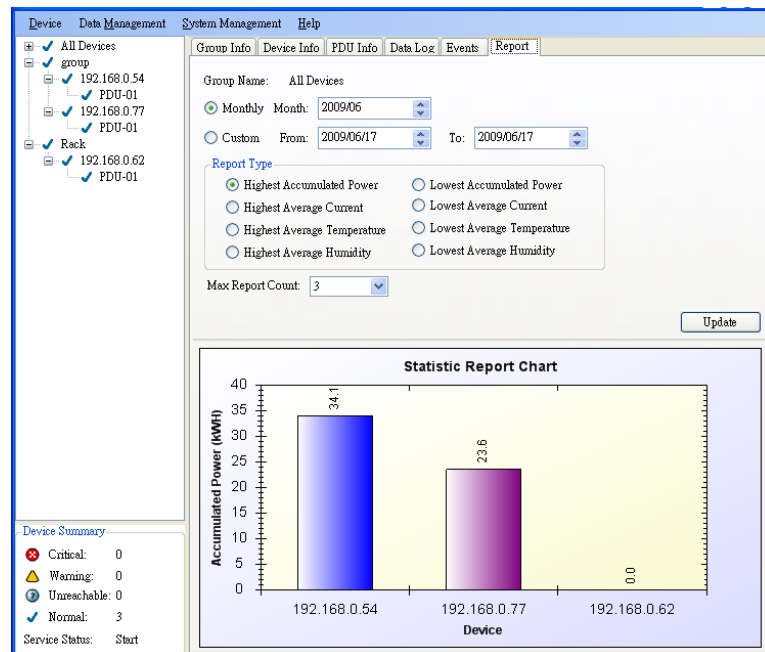
DESCRIPTION

UNIPOWER's VIGILANT Series are compact 1RU high 19" rack-mountable AC Power Distribution Units (PDU) offering a total of 8 switched NEMA 5-15/20R outlets for the 115VAC models or 8 switched IEC60320-C13 outlets for the 230VAC models.

These SMART PDUs offer power monitoring through a front panel mounted true RMS digital current meter as well as remotely via an onboard WEB server, SNMP services and bundled monitoring and control software. Users with multiple units installed can also benefit from the bundled software's ability to manage and monitor several units concurrently.

The ability to remotely control individual outlets enables network managers to define the power ON/OFF sequence of installed equipment with maximum flexibility.

VIGILANT Series PDUs also provide user-definable alarm thresholds and the ability to set up remote event alerts via Email or SNMP traps as well as providing an audible local alarm.

FEATURES

◆ True RMS Digital Current Meter
◆ Remote Power Monitoring via WEB, SNMP & Bundled Software
◆ HTTP, HTTPS, SNMP, DHCP & UDP Protocols Supported
◆ Individual Outlet Switching
◆ User Programmable ON/OFF Sequencing
◆ User Programmable Alarm Thresholds
◆ Event Alerts via Email, SNMP Trap
◆ Audible Alarm
◆ UL Listed

TWO YEAR WARRANTY

SAFETY STANDARDS

UL60950-1 (Listed)
CSA22.2, No. 60950-1
EN60950-1

CE
LVD2006/93/EC

MODEL NUMBERS

MODEL [1,2]	MAX. CURRENT	NOMINAL VOLTAGE	FREQ.	OUTLETS
PDUAC1US-N	20A	115VAC	50/60Hz	8 x NEMA 5-15/20R
PDUAC1US-E	16A	230VAC	50/60Hz	8 x IEC60320 C13

Notes:
1. Input via IEC60320-C20.
2. 115V models supplied with ~10ft (3m) IEC60320-C19 to NEMA 5-15P Power Cord.
   230V models supplied with ~10ft (3m) EC60320-C19 to EC60320-C20 Power Cord.

WEB SERVER INTERFACE

Power Monitor via Web

Power Control via Web

Email Alert via Web

SNMP Trap via Web

UTILITY INTERFACE

Group Management

Graphic Summary

Event and Data Log

Power History Chart

www.unipowerco.com

NORTH AMERICA CALL: +1-954-346-2442 • EUROPE CALL: +44 (0)1903 768200
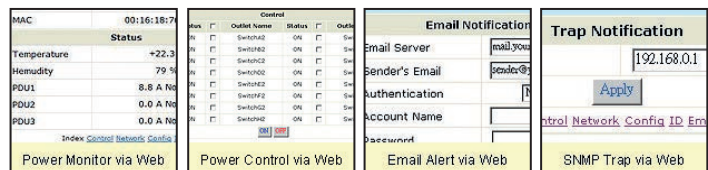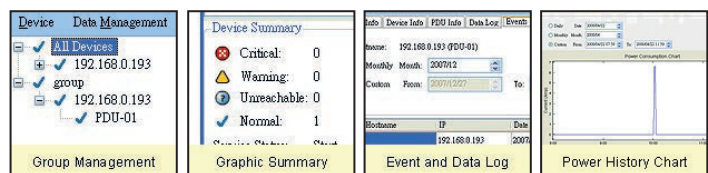
SPECIFICATIONS

INPUT/OUTPUT

Voltage Range
  115VAC Nominal 100-127VAC
  230VAC Nominal 200-240VAC
Output Current
  115VAC Nominal 20A
  230VAC Nominal 16A
Frequency.. 50/60HZ
Protec ion
  115VAC Nominal ....20A Resettable Circuit Breaker
  230VAC Nominal ....16A Resettable Circuit Breaker

MONITORING

LED Indicators
  SSL .... Yellow, ON indicates SSL Active
  DHCP .... Green, ON indicates DHCP Active
  Outlet Status (8) .... Green, ON indicates Outlet Enabled
Current Meter .... 3 Digit 7 Segment LED True RMS
  Range .... 0 to 20A
  Resolution... 0.1A
  Precision... ±2%, ±0.1A

COMMUNICATIONS

Network .... TCP/IP Ethernet, RJ45 connection

ENVIRONMENTAL

Operating Temp. Range ....0°C to 40°C
Storage Temp. Range..-40°C to +85°C
Humidity...0% to 90%, Non-Condensing

REGULATORY

Safety .... UL60950-1, CSA22.2 No. 60950-1 (LISTED)
....   EN60950-1 CB
EMC.. EN55022 Class A, EN55024
....   EN61000-3-2, EN61000-3-3
....   FCC Part 15 Class A Certified (115VAC only)

PHYSICAL SPECIFICATIONS

Case Material .... Black Powder Coated Steel
Dimensions, Inches (mm) ....1.7H x 17.0W x 3.5D
                                                                        (44 x 432 x 90)
Rack Mounting... 19", 1U High
Weight 6.6lbs (3Kg)

FRONT VIEWS

PDUAC1US-N (115VAC)

Outlet Status LEDs · Audible Alarm
Circuit Breaker · AC Outlets - 8 x NEMA 5-15/20R · SSL & DHCP Status LEDs · True RMS Current Meter · Function Selector · Ethernet

PDUAC1US-E (230VAC)

Outlet Status LEDs · Audible Alarm
Circuit Breaker · AC Outlets - 8 x IEC60320-C13 · SSL & DHCP Status LEDs · True RMS Current Meter · Function Selector · Ethernet

pduac1us-ds-revB-0713.indd